

Chapter 7. Finance Planning Framework

About This Chapter

California water managers have been directed to provide reliable water supplies, reduce flood risks, increase public safety, and help grow the economy and enhance ecosystems. These same demands have been placed on them with an adage of doing more with less, during a time of economic downturn, rising public sector debt, and weakening public support for additional investments. This chapter initiates a process to address challenges in financing the programs and activities outlined in earlier chapters.

Chapter 7 establishes a format in which multiple requirements, perspectives and previously non-integrated financing information can be considered. Doing so enables stakeholders to collectively and in context, consider the issues to be addressed and the decisions to be made.

Framework Scope and Process

This chapter reflects finance planning from the State government's perspective and goals. It serves to guide State funded investments in integrated water management (IWM). The investment scope includes IWM programs and projects directly administered by State government as well as future State government IWM loans and grants distributed as incentives to regional and local governments. *This is not a framework to direct regional or local finance decisions; and it does not modify existing State government investment frameworks for such ongoing financial activities as distribution of currently authorized general obligation bonds (G.O. bonds).*

Several State agencies and other Update 2013 stakeholders worked together to develop this Finance Planning Framework (Framework). The framework provides a logical structure and sequence for financial plan development. This chapter is organized and presented in the same order as the eight components of the Framework. It begins by describing the scope of IWM as well as the types of IWM activities that should be considered for funding. It then offers background on how existing infrastructure was financed, along with descriptions of historical federal, State, and local water expenditures since 1985.

This chapter then considers the role of State government in future financing efforts. This is tempered with the magnitude of the investment California needs along with potential funding mechanisms that might be considered. Because financial resources are limited in relation to the investment needs, prioritization of the activities and programs is the next step of the Framework.

This Finance Framework chapter includes:

Key Facts and Findings

- Demand for Funding
- Expenditures and Fund Sources
- Organization/Alignment

Framework

- IWM Scope and Outcomes
- IWM Activities
- Existing Funding/Expenditures
- Funding Reliability

The terms finance and fund tend to be used interchangeably, and often refer to the other in their own definition. For this chapter:

- **Fund** will refer to a supply or stock of money
- **Funding** will refer to making a supply of money available for a need, program, or project
- **Finance** will refer to the management of money, which could include things like borrowing, developing a revenue stream, etc.

- State Government Role and Partnerships
- Future Costs
- Funding, Who and How
- Trade-Offs

Next Steps

Key Facts and Findings

Several striking facts and findings emerged in the development of the Finance Planning Framework. Most significant was finding that there is no single, easily analyzed source of information about current and past IWM investments. This lack of integrated information creates several dilemmas. First, simply discussing finance expenditures often devolves into conflict. Second, stakeholders often operate from completely different sets of information prepared for disparate purposes. In most (but not all) cases the information is accurate but sometimes incomplete, drawn out of context and grounded in fundamentally different assumptions. The reliance on information prepared for specific uses to make broader assumptions is problematic.

The Finance Framework evolved as stakeholders worked together to create a common understanding of California's water financing picture. Using a storyboard format, the goal was to establish a financing baseline and shared meaning about the past and current situation.

The facts and findings developed in this process represent a significant step forward in the comprehensive understanding of complex finance mechanisms that, over time, were created in a fragmented fashion. The following provides an overview of some of the findings and issues to be considered in implementing the Finance Framework.

Demand for Funding

The status of California's water infrastructure as well as the demands placed upon it, is of national interest. A number of different sources and estimates on demands for funding have been reported. Even with the variation in numbers among experts, the cumulative total is staggering. Following are examples.

An assessment,¹ conducted by the U.S. Environmental Protection Agency in 2011 found that California will need \$44.5 billion to fix aging drinking water systems over the next two decades. The survey placed California at the top of a national list of water infrastructure needs. In California and elsewhere, the biggest needs involve repairing and upgrading water transmission and distribution lines.

The American Society of Civil Engineer (ASCE) Infrastructure Report Card for America,² is prepared every four years. Structured as a form of a school report card it assigns letter grades to each type of infrastructure. The 2012 report card gave California a "C" and assigned the following investment needs for water infrastructure:

- Levees/Flood Control--\$2.8 billion per year
- Urban Runoff--\$6.7 billion per year

¹ http://water.epa.gov/grants_funding/dwsrf/upload/epa816r13006.pdf

²² http://www.ascecareportcard.org/data_specific/CA_Report_Card_News_Release.pdf

- Wastewater--\$4.5 billion per year
- Water--\$4.6 billion per year

Other key highlights from the ASCE evaluation indicate California has 807 high hazard dams and only 45% of the State regulated dams in California have an Emergency Action Plan.

Information gathered in preparation of the California Flood Future Report³ provided significant facts and findings regarding flood risk and requirements for funding.

- \$575 billion in structures are at risk in the 500-year floodplains. This doesn't include economic impacts on families, communities, local businesses, and entire regions when worksites and public facilities are closed due to flood damage.
- More than \$50 billion in existing needs have been identified for flood management projects, which exceeds available funding sources.

The Bay Delta Conservation Plan (BDCP) is a 50-year ecosystem plan designed to restore fish and wildlife species in the Delta in a way that also protects California's water supplies while minimizing impacts to Delta communities and farms. The total estimated cost of implementing the Bay Delta Conservation Plan, over the 50-year permit term is \$24.54 billion (in undiscounted 2012 dollars).⁴

Expenditures and Funding Sources

Cross cut budgets for IWM activities are not compiled at most levels of government. This makes completion of a full assessment of actual investment and fund sources difficult. Beyond the wide variation in how different entities prepare budgets, the sheer number of entities involved in providing water-related services make efforts to successfully compile budget numbers daunting. At the local level, the funding labyrinth is especially difficult to navigate because activities often occur in the same proximity, many projects (by design) serve multiple purposes, and many activities have multiple fund sources.

Local Expenditures

Local entities such as special districts, water districts, utilities, and cities account for the largest portion of IWM expenditures and are expected to continue this role for the foreseeable future. Annual local expenditures for 2010 totaled about \$18 billion. Even with a significant investment and emphasis by these agencies in water expenditures, the water management community reports that water projects at all levels of government are commonly underfunded.

The costs of ongoing operations and maintenance (O&M) for existing facilities, along with regulatory costs, consume a large portion of local agency budgets. In addition, local agency budgets are often unable to allocate replacement funds for aging infrastructure.

³ Insert correct reference for this

⁴ http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Estimated_Cost_to_Implement_the_BDCP_Brochure_5-29-13.sflb.ashx

With limited funding sources and unreliable funding, financing and O&M are ongoing challenges for agencies. Some funding issues included:

- Competition among agencies for resources such as workforce, grants and technical assistance
- Competition with other public demands for resources. As an example, flood management agencies are often supported by local agency general funds and must compete with other public demands for resources such as transportation, parks, social services, education, and health services.
- Reductions in property tax revenues
- Costs associated with permitting and mitigation of projects
- Lack of resources in small agencies to prepare funding applications. For example, some of the information requested on grant or loan applications is not typically collected by the agency and not quickly developed, and smaller agencies might not have the resources to prepare an effective application.

Agencies also have difficulty raising matching funds for federal programs. Many of the agencies require federal or State funds for major capital improvements; however, with limited local revenue generation, many agencies cannot access some of the available federal funds because they cannot raise the required matching funds.

Local agencies have indicated that often they are constrained in fully utilizing existing fund sources by various statutes and restrictions that govern financing considerations. Examples are:

- Flood management agencies report they have substantial restrictions to increasing property assessments due to Propositions 13 and 218. The majority of flood management agencies depend on some type of property assessment as a revenue source; however, the ability to increase or initiate property assessments to satisfy revenue requirements has been restricted for some time in California.
- Agencies that are partially funded through development fees or special projects assessments can be limited by assessment-zone boundaries. These assessment-zone boundaries impose substantial limitations on the uses of funds. This is important because flooding, water supplies and water quality are sometimes affected by activities occurring upstream of zone boundaries. In addition, the solution or best management action for providing IWM benefits might be located outside the assessment-zone boundary.

State Funding

State government investments since the turn of the century have both been directed to specific purposes (such as the State Water Project) and used to successfully incentivize local investments in water related projects.

State Government expenditures and fund sources have shifted over time. In recent years, use of the General Fund (general tax base) has decreased and use of public financed bonds and special fund sources have increased. Flexibility in utilizing fund sources is also limited at the State level.

Even with passage of State G.O. Bonds since 2006, and State government revenues from special projects and fees steadily increasing from about \$1.3 in 2001 to \$2.7 billion in 2010, expenditures

for supporting IWM are inflexible, variable (i.e. annual funding levels) and unpredictable. Existing State bond funding for flood management will be depleted by 2018.

Federal Funding

The amount of funding flowing to the State from the federal government has also changed over time. These changes in fund sources reflect the perspectives and priorities of State and federal elected officials as well as public perception and priorities for certain types of water related expenditures. For example, federal investment has historically been the primary source of funding for flood management, but in the context of changing federal priorities, is decreasing relative to State government and local investments.

For most agencies, federal funds are becoming scarcer. The USACE process for identifying federal interest in flood risk-reduction projects has historically emphasized damage-reduction benefits, while placing less emphasis on other project output such as ecosystem restoration, regional economic development, and other social benefits. With the fiscal issues facing the federal government, most agencies believe that federal funding programs will continue to be reduced, if not eliminated. As an example, the USACE might not continue to fund studies or ongoing projects at the same rate as in the past. Also, funding a large number of studies and projects over long periods is inefficient and results in delayed project development and increases project costs.

Operations, Maintenance and Environmental Mitigation

While there is often support for new projects, IWM planning and finance have not adequately covered monitoring, operations, maintenance, and environmental mitigation over the life of a project.

Environmental impacts created long ago, known as legacy impacts, no longer have responsible parties to pay for mitigation.

Debt

California voters, on the heels of drought and flood have approved several State general obligation (GO) bonds to fund water projects. Because no additional tax or other revenue stream is created with the issuance of bonds, overtime, GO bond debt service has taken an increasing share of California's State budget. Total authorized water related bond debt rose from about \$3.8 in 1999 to \$22.9 billion in 2011, about 20 percent of total bond debt. On a per capita basis, authorized water related bond debt rose from \$115 to over \$610 requiring an annual debt service of over \$24 per capita.

By comparison, total authorized bond debt across all State government activities rose from \$38 billion in 1999 to \$128 billion in 2011. On a per capita basis, total G.O. bond debt rose from \$1,130 to over \$3,400.

Organization/Alignment

Poor alignment of projects among public agencies affects our ability to fund and deliver efficient and economical multiple-benefit projects. In many cases, management for water supply, flood management and ecosystem projects, often in the same location or system, continues to be funded separately.

Overlapping-and sometimes conflicting-responsibilities and priorities among the many regulatory agencies complicate and/or increase the cost of the task of protecting human life, property, economic interests, and the environment. While collaboration among the parties can yield significant benefits, in

some cases the agencies are constrained by statutory mandates that prevent trade-offs and expose the agencies to litigation.

Finance Planning Framework

The Finance Planning Framework is a first step in more fully understanding California's Financing picture and finding options to improve the current situation. During the Update 2013 process, a finance storyboard was developed through extensive collaboration with the Public Advisory Committee, Tribal Advisory Committee, Finance Caucus and other Update 2013 participants. It was developed in response to observations and stakeholder input that there was no common language or understanding of the finance methods and issues across California's geographic regions, IWM strategies or levels of government (e.g. local, state, federal, Tribal). The finance storyboard was the thought process that developed into the financial framework described in this chapter.

The purpose of the finance storyboard for Update 2013, and beyond, is to provide a framework to organize and describe the suite of issues and methods that are critical for advancing a statewide IWM finance planning effort. It also provided the structure and the flow of logic required to synthesize a large volume of information and stakeholder input such that it supports actionable IWM finance objective and related actions for State policymakers. This storyboard also provided an approach for the diverse California Water Plan stakeholders and planning partners to discuss and develop a common language and understanding about the role of State government funding and investment in integrated water management (IWM) activities.

The finance planning framework is organized into eight components:

1. IWM Scope and Outcomes
2. IWM Activities
3. Existing Funding/Expenditures
4. Funding Reliability
5. State Government Role and Partnerships
6. Future IWM Costs
7. Funding, Who and How
8. Trade-Off Analysis

Each component represents a topic that stakeholders and planners felt needs to be part of any statewide IWM finance planning effort. The sequence of the components represents the necessary chronology of the planning effort. For example, it is necessary to define the scope of IWM (component 1) prior to discussing the State Government Role (component 5). It is also necessary to clarify the role of State Government prior to estimating future funding demand for said role. Note that the traditional finance planning topic of apportioning costs and identifying funding methods does not occur until component 7.

The following sections describe each component of the finance planning framework.

IWM Scope and Outcomes

The purpose of this section is to define the scope of State governments' future involvement in IWM activities along with the expected outcomes. While the high level synthesis of IWM benefits can be captured in the three broad categories of public safety, environmental stewardship and economic stability, the further refinement of benefit descriptions below is more useful as a tool for determining if an activity is within the scope of IWM. The Finance Caucus approached this by describing the benefits intended to be achieved from the State's investment in IWM. These benefits are described in the table below. Additional information on this topic can be found in chapters 2 and 3.

Table 7-1 Benefits within the Scope of IWM

IWM Benefit Type	Definition
Affordability	Occurrence of water supplies of sufficient quality, certainty and cost to enhance or serve disadvantaged communities, sustain diverse portfolios existing and future of economic activities as well as achieve water costs that enable, at a minimum, current levels of standard of living.
Drought Preparedness	The magnitude and probability of economic, social or environmental consequences that would occur as a result of a sustained drought.
Energy	Efficient use, or increases in production/recovery of, energy associated with managed and unmanaged water use, storage, treatment, distribution and/or reuse.
Environmental	Preservation or restoration of the fish, wildlife, natural processes/functions, habitat and other aquatic resources for the continued viability of natural heritage, self-sustaining ecosystems and/or biodiversity. (e.g. recovery of sensitive species, control of invasive species, adequate water supply and quality)
Flood Damage Reduction	Reduce the adverse impacts of floods to human and natural systems through a portfolio of structural and non-structural measures that address their vulnerability, exposure and recovery during flood events. This includes pre-flood planning and hazard mitigation, emergency preparedness and response activities, and post-event repairs (including environmental infrastructure repairs).
Food Security	Adequate reliability, affordability, and supply of water, land and other natural resources to reliability to support domestic production of food, fiber, livestock, and other farm products to meet current and forecasted consumer demands.
Fuel Load Management	Fuel reduction involving the modification of vegetation in order to reduce potential fire threat, reduce the risk of high severity wildfires thereby; (1) preserving water quality and natural water treatment processes within watersheds; (2) avoidance of downstream sedimentation impacts on water supply; and/or (3) improve wildlife habitat capability, timber growth, or forage production.
Groundwater Overdraft Reduction	Avoidance of the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average conditions.
Operational Flexibility and Efficiency	Optimization of existing legal, operational and management procedures for (and/or physical modifications to) existing water management faculties to improve the efficiency of existing water operations or uses (e.g., irrigation)
Reduce Climate Change Impacts	Development and implementation of strategies that improve resiliency, reduce risk, and increase sustainability for water and flood management systems and the ecosystems upon which they depend.
Water Dependent Recreational Opportunity	Opportunities for water-dependent recreation for California's residents, communities and visitors now and into the future (e.g. skiing, fishing, kayaking, etc)
Water Quality	Chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose or beneficial use for the enhancement or preservation of public and environmental health
Water Supply and Supply Reliability	Occurrence of water supplies of sufficient quality and certainty to enhance or sustain and grow current types and levels economic activities, ecosystem health and maintain quality of life

IWM Activities

This section describes the types of IWM activities that need to occur to generate the benefits identified in the preceding section. This section defines the scope of activities that are encompassed in the finance objective and related actions detailed in chapter 8 – Roadmap for Action. The activities described below represent opportunities to produce desired outcomes. This section describes investment categories to be used for guiding State government IWM investment (i.e., generally roll-ups of various types of regional projects or programs) in a way that is relevant to regional activities (i.e., generally project-level). They were developed in response to several key findings that indicated a need to clarify and refine the methods for categorizing State IW investments.

Categorization of future investments also helps formulate multi-objective, multi-benefit solutions that are comprised of combinations of the activities described below. Through intensive collaboration with the Update 2013 Finance Caucus, the categories presented below also helped build a common language and bridge bureaucratic and policy-making silos. This approach will be useful for aligning funding and finance planning processes across more than 2,300 local, State, and federal government agencies; each with its own planning processes and scales (e.g. project-level scale at the local level and the higher level investment categories that State policy-makers use).

Two primary categories of investment are innovation and infrastructure that are further broken down into investment categories. These categories could be used for allocating future State government investments.

Innovation includes actions that improve information, institutional, and technological activities essential for supporting IWM. Innovation categories include:

- **Governance improvements** to promote more coordinated and integrated resources planning among State government agencies and with regional collaboratives and federal agencies.
- **Planning/Public Process improvements** to promote and incentivize communication, coordination and collaboration among water planners/managers, land use planners/decision-makers, and other resource managers at the regional and watershed scale.
- **Strengthening government agency alignment** to improve coordination and consistency among State, federal, Tribal and local government agencies' data/information, plans, programs, policies and regulations.
- **Information technology improvements** to promote and incentivize water data collection, management, distribution, access, and exchange/sharing; and analytical methods.
- **Research & Development** to advance, improve and commercialize new water/energy technologies, improve data collection & exchange, and develop analytical tools for integrated water management

Infrastructure includes structures and facilities that support human activities (grey infrastructure), as well as naturally occurring assets and services such as wetlands, riparian habitat and watershed systems (green infrastructure). The categories listed below include not only the capital cost of constructing a facility or restoring habitat, but also the long term operation and maintenance costs which have often been an afterthought to implementation and not adequately financed over their useful life (i.e. the accumulation of significant deferred maintenance and aging infrastructure). Infrastructure categories include:

- **Local and Regional projects** including IRWM, Capital Improvement, Urban Water Management and many other local plans (these projects would include different mixes of the Water Plan's 30

resource management strategies depending on the region/location). Within a region, projects would also include portions of the region such as local projects or those at the groundwater basin scale.

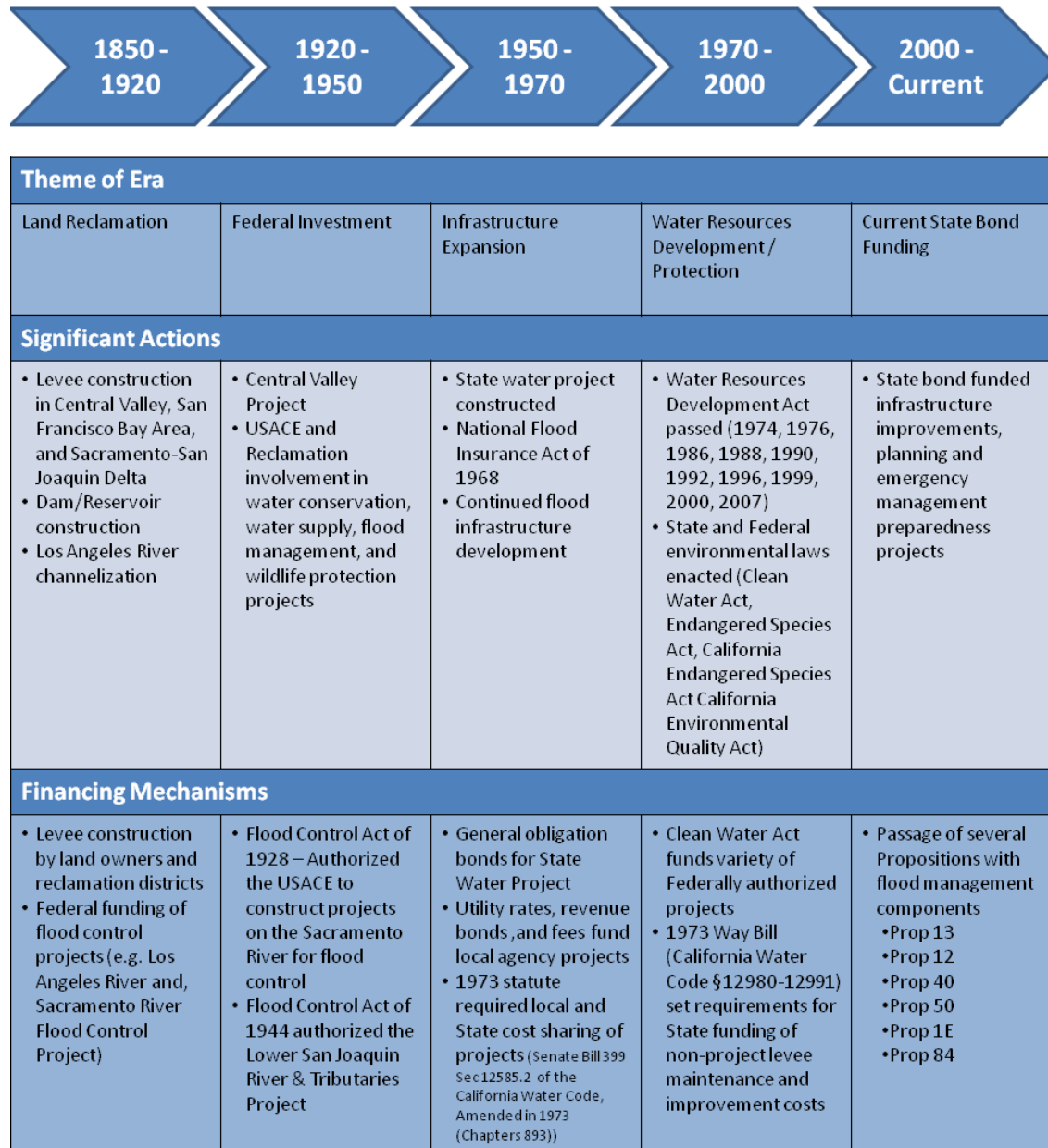
- **Inter-regional projects** that would benefit two or more regions.
- **Statewide systems** for water, flood, water quality, ecosystems and wastewater management that provide public benefits.

Existing Funding/Expenditures

This section specifies the levels and source of recent and current IWM expenditures. It includes a brief summary of historical local, State and federal expenditures based on the defined scope of IWM. Much more detailed data, metadata and information on this topic are included in the Volume 4 Reference Guide.

Historical Overview

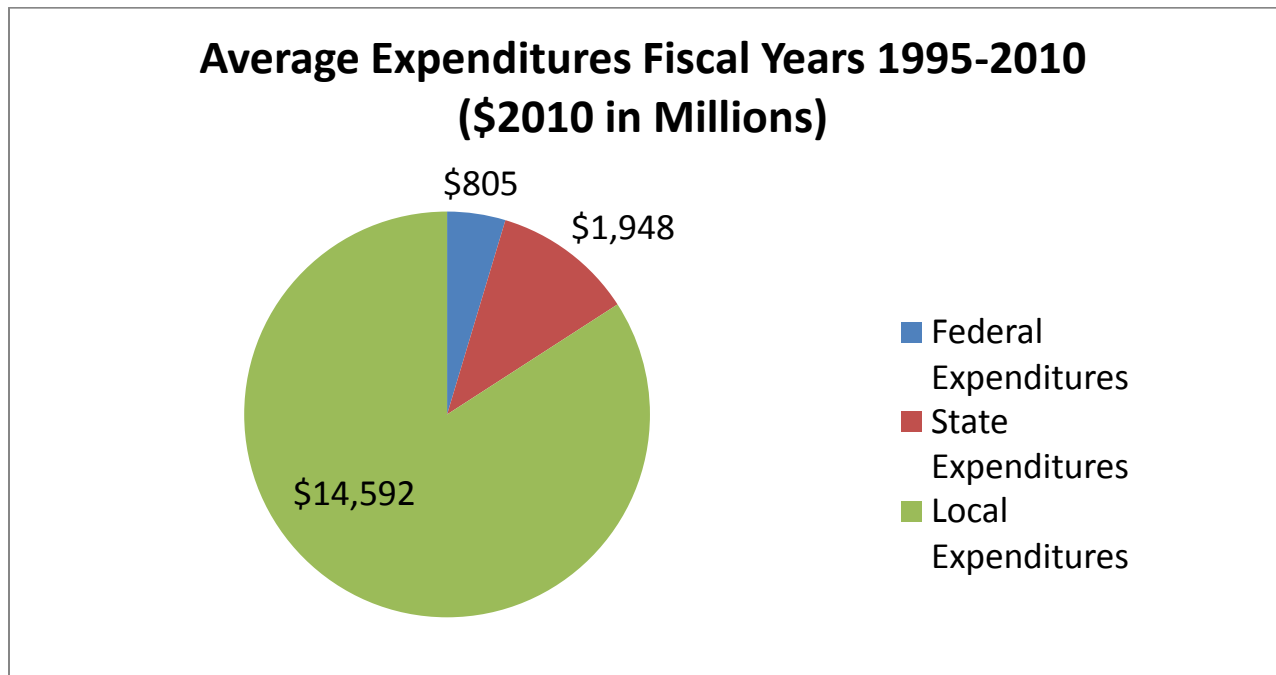
Historically, funding for water management in California has been provided by a combination of local, State, and federal agencies. Figure 7-1 shows the general historical spending and funding eras over the past 160 years, using broad categories. Starting with the Gold Rush, initial major infrastructure was put in place to bring land into production. Over the next several decades, multipurpose infrastructure projects were built. In the latter decades of the 1900s, investment shifted to include environmental protection projects. Shifts in financing eras are a result of major events, natural and human, and are generally reactive in nature. This century has seen several State bonds passed for infrastructure purposes, including flood management, as well as significant federal funding. More information on historical funding can be found in Chapter 2 and in Volume 4 Reference Guide.

Figure 7-1. History of Funding for Water Management in California

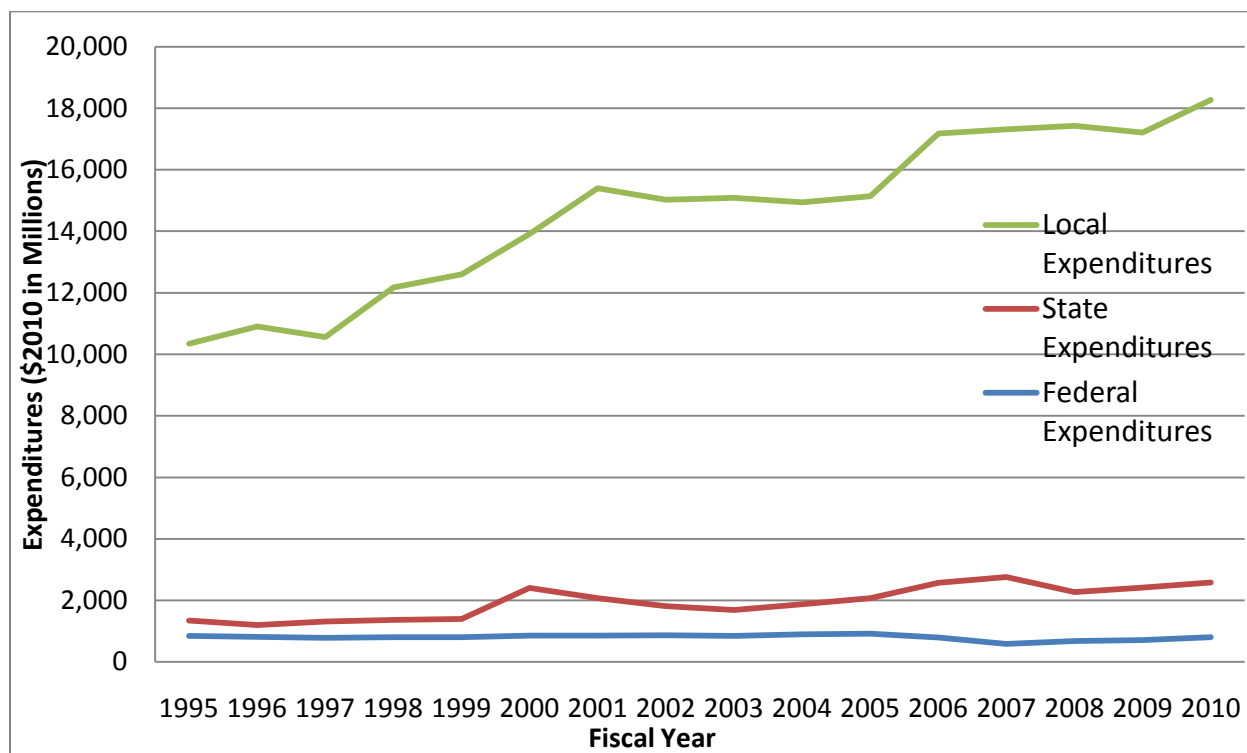
Local, State, and Federal Expenditures, 1995 to 2010

Figure 7-2 illustrates the average proportion of water management expenditures by local, State, and federal agencies between 1995 and 2010. Local agencies account for the largest portion of expenditures, averaging \$14.6 billion per year, followed State agencies at \$1.9 billion and federal agencies at \$805 million per year. Expenditures vary over time, depending on factors such as State and federal appropriations and bond measures.

Figure 7-2. Recent Annual Expenditures on Water Management in California, 1995-2010



Figures 7-2 and 7-3 show that local agencies are responsible for the majority of the total expenditures. Between 1995 and 2010, annual project expenditures for water management in California ranged from approximately \$12.5 billion to \$21.7 billion, as shown in Figure 7-3. This figure shows total expenditures for flood management in California by local, State and federal agencies. Local expenditures include water management activities by city, county, and special districts. State level expenditures include water management activities in the Natural Resources and Environmental Protection Agencies and general government. Federal expenditures include water management activities in California by federal agencies. Between 1995 and 2010, there were significant short-term bond infusions of funding for specific State projects. In Fiscal Year 2008/2009, federal expenditures have a one-time increase for shovel-ready projects due to the passage of American Recovery and Reinvestment Act (ARRA).

Figure 7-3. Recent Trends in Local, State, and Federal IWM Expenditures (in millions) 1995 – 2010.

Funding Reliability

This section provides a high level description and qualitative summary of funding sources currently being used, and the role of State government bonds, for integrated water management. This information helps identify IWM activities that are currently underfunded, unfunded, and/or have no foreseeable funding sources. More information on this topic can be found in Chapter 2 Imperative to Invest.

Existing Funding Mechanisms and Revenue Sources

System capital improvements and ongoing maintenance and operation costs are typically financed with cash-on-hand or by issuing debt. Cash financing is often supported by user fees or taxes that support a general fund. User fees include volume-usage charges and service fees which are typically fixed, such as residential connection charges. Cash is typically used to pay for operation and maintenance (O&M) costs and larger capital project costs are primarily financed by issuing debt. Debt financing includes various types of bonds ranging from G.O. bonds, backed by the General Fund, to builder revenue bonds backed by special assessment districts. Access to different types of capital markets varies across State government and local agencies.

Federal finance strategies typically involve the federal treasury and finance water management projects selected based on benefit-cost analyses. Direct project beneficiaries reimburse the costs through user fees. For example, Central Valley Project water supply contractors pay for water deliveries which finance CVP costs.

State government uses bonds to finance new water management capital projects, including general fund supported bonds and revenue bonds. General Obligation (G.O.) bonds are backed by the taxing power of

the State government and are paid off from the General Fund with interest. Financing for water infrastructure by State government has increasingly relied on G.O. bonds in recent years. G.O. bonds provide an infusion of capital to finance construction but may not adequately provide for O&M, and ongoing repair costs. State government also uses lease-revenue bonds which are similar to G.O. bonds but are not backed by the General Fund and do not require voter approval. Revenue bonds are not supported by the General Fund and are repaid by another revenue stream, typically user fees.

Local agencies primarily finance water management projects with revenue bonds. Revenue bonds are backed by user fees and typically carry a higher interest cost than G.O. bonds. Some projects are financed by local G.O. bonds backed by local property taxes, although this is less common due to two-thirds voting requirements from Proposition 218. Local agencies additionally have access to State revolving fund (loan) programs and State-local assistance grants. These typically involve cost-sharing between local and State government agencies.

Table 7-2 summarizes water management revenue sources that have been traditionally used by State government and local agencies. Their appropriate uses, feasibility, key trade-offs, and applicability in California for these revenue sources are described in Table 7-2.

Table 7-2. Traditional State and Local Water Management Revenue Sources

Revenue Source	Appropriate Uses	Feasibility	Key Tradeoffs	Application in California
General Fund	Activities that benefit the general public	Available each year, but subject to competing uses	Funds are limited	A common source of funding
General Obligation Bonds	Projects that benefit the general public	Commonly used	Subject to a vote	Commonly used, but some concern about getting future bonds approved
Revenue Bonds	Projects where a dependable revenue stream is available	A standard method of financing	None	A typical method of financing for local and state projects
User Fees	Projects where direct beneficiaries are easily identified.	Potentially works well with clearly defined beneficiaries, less likely to work for projects with significant public benefits.	Will focus projects to those with local scope which may undermine IWM efforts. May limit state's ability to increase fees and taxes to support other projects.	State Water Project is an excellent example as over 90% of project cost will be repaid by direct beneficiaries (contractors)

Revenue Source	Appropriate Uses	Feasibility	Key Tradeoffs	Application in California
Assessment Districts	Can be formed by majority vote but must support local projects that do not provide a "general" public benefit. Water and storm water projects are generally allowed under assessment districts.	The state could coordinate with local agencies to establish assessment districts.	Assessment districts cannot be used to support general public benefits and, as such, will tend to focus on local projects.	1911 and 1913/1915 assessment districts are widely used by local agencies in California.
Impact Fees	Used by local governments to charge new development for the additional cost imposed on existing public infrastructure.	Impact fees are generally used in over 90% of local governments in California, thus there is limited opportunities for further expansion.	Deters new development.	Widely used in California
Mello-Roos Special Taxes	Areas with new development. It is possible to establish Community Facility Districts in other areas, but this requires a majority vote by residents to tax themselves.	CFDs are most feasible during strong housing markets when there is significant new development.	When housing markets and development slows, forming additional CFDs is difficult and there may be concerns with revenues to pay back existing bonds.	Recently used to finance the Bear River Levee Setback project in Yuba County
Private Investors	Local water projects that generate revenue	Typically have been used as part of design-build process	Interest rates are higher than public debt, can't be used on state projects	Limited to local projects
Private-Philanthropic	Traditionally has been used for ecosystem projects	Commonly used	Not a predictable revenue source	Widely used in California

California Water Bonds

This section summarizes data for California water bonds issued between 1970 and present, and other G.O. bond debt, including schools and other infrastructure, to place the level of water bond debt into context. Water related bonds make up a larger portion of total bond debt in recent years. The general trend shows an increase in G.O. bond financing of water projects as a portion of total G.O. bonds. Revenue bonds are also an important source of financing for capital projects, which are not supported by the General Fund and are generally used by local agencies, but are not included in this section summary.

Table 7-3 summarizes water management related bonds that were passed in California. In constant 2010 dollars, a total of \$32.4 billion in water bonds were approved in California since 1970. Of this \$32.4 billion, \$23.2 billion, or 71% of the water bonds, were passed since 2000. This shows the increased reliance on bonds for financing water infrastructure. Accordingly, the cost of bond debt service has increased from around 8 percent of General Fund spending in State fiscal year 2001 to almost 36 percent

in fiscal year 2010 for resource and environmental programs. As of fiscal year 2010, the debt-service ratio (ratio of debt service to annual revenues) is about 6 percent.

Table 7-3. California Water Bonds from 1970 to Present

Year	Title	Base Amount (millions)	In 2010 Dollars (millions)
1970	Clean Water Bond Law of 1970 (Prop. 1)	250	1,504
1974	Clean Water Bond Law of 1974 (Prop. 2)	250	1,028
1976	California Safe Drinking Water Bond Law of 1976 (Prop. 3)	175	606
1978	Clean Water and Water Conservation Bond Law of 1978 (Prop. 2)	375	1,123
1982	Lake Tahoe Acquisitions Bond Act (Prop. 4)	85	185
1984	California Safe Drinking Water Bond Law of 1984 (Prop. 25)	75	150
1984	Clean Water Bond Law of 1984 (Prop. 28)	325	651
1984	Fish and Wildlife Habitat Enhancement Act of 1984 (Prop. 19)	85	170
1986	Water Conservation and Water Quality Bond Law of 1986 (Prop. 44)	150	290
1986	California Safe Drinking Water Bond Law of 1986 (Prop. 55)	100	193
1988	California Safe Drinking Water Bond Law of 1988 (Prop. 81)	75	138
1988	California Wildlife, Coastal, and Park Land Conservation Act (Prop. 70)	776	1,427
1988	Water Conservation Bond Law of 1988 (Prop. 82)	60	110
1988	Clean Water and Water Reclamation Bond Law of 1988 (Prop. 83)	65	120
1996	Safe, Clean, Reliable Water Supply Act (Prop. 204)	995	1,471
2000	Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act (Prop. 13)	1,970	2,632
2000	Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (Prop. 12)	2,100	2,805
2002	California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002 (Prop. 40)	2,600	3,305
2002	Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Prop. 50)	3,440	4,372
2006	Disaster Preparedness and Flood Protection Bond Act of 2006 (Prop. 1E)	4,090	4,385
2006	Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Prop. 84)	5,388	5,777

State G.O. bonds have become an important source of water and flood management funding. G.O. bonds are a fluctuating revenue source because of the intermittent nature of bond approval and sales, making them a less predictable or reliable revenue source for water projects. Table 7-4 shows total authorized state G.O. bonds as of 1999, 2005 and 2011. Total water bonds were \$3.8 billion in 1999, accounting for approximately 10 percent of total authorized State bonds; and increased to \$22.9 billion by 2011, or 18 percent of total authorized bonds, largely a result of propositions 1E and 84. Currently authorized G.O. bonds are expected to be fully allocated by 2018.

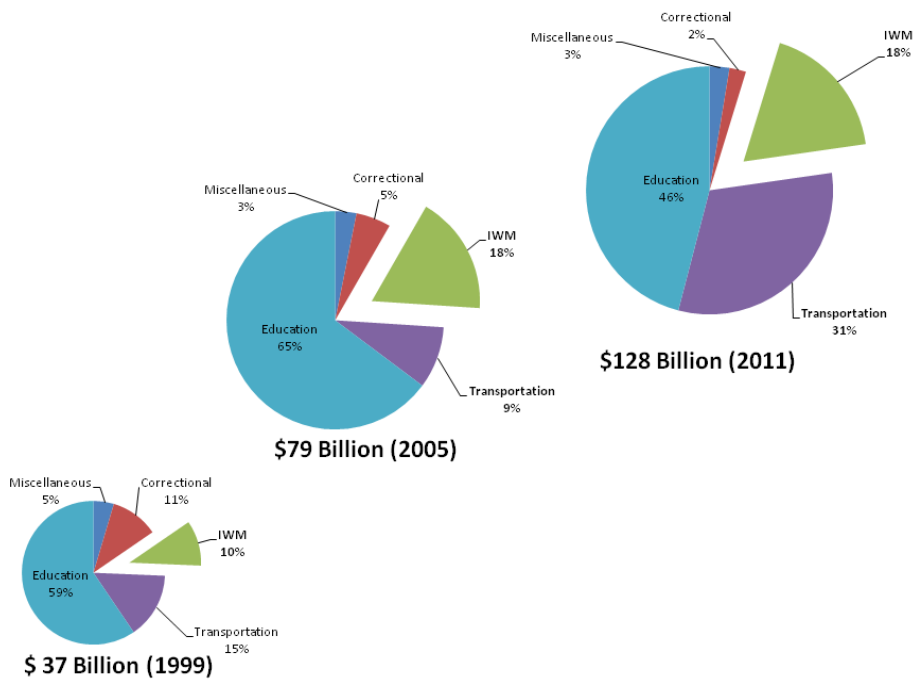
Table 7-4. Total Authorized GO Bond Debt in California*

Category	1999	2005	2011
Miscellaneous	1.7	2.5	3.3
Correctional	4.1	4.1	2.8
Total Water Bonds	3.8	14.0	22.9
Transportation	5.6	7.2	40.0
Education	22.4	51.1	58.6
Total	37.7	78.9	127.6
Per Capita	1,127.2	2,191.9	3,407.9

*\$ billion

Source: State of California, 2010

Figure 7-4 shows that funding for IWM projects has gradually increased as a portion of total bond funding -- 10 percent of the total in 1999 to 18 percent by 2011.

Figure 7-4. Total Authorized State General Obligation Bonds in California

Source: State of California, 2010

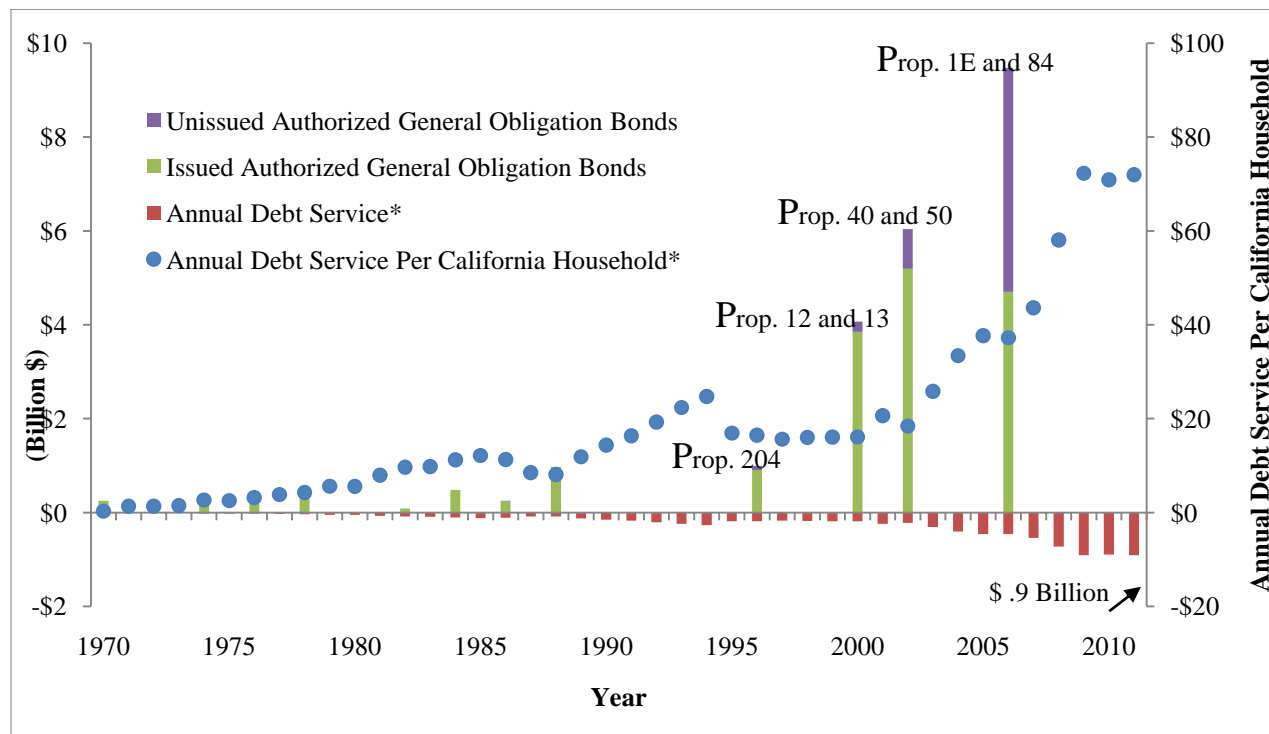
Figure 7-5. General Obligation Water Bond History, 1970-2012

Figure note: Debt service is applicable to issued GO bonds only.
Source: DOF, 2012

Figure 7-5 illustrates outstanding GO bond funding for water-related activities over time. Authorized G.O. bonds and federal funding accounted for approximately two-thirds of total water management expenditures in FY 2012. In recent years, State bond funds have become a larger portion of total water management investments in California as combined federal and local expenditures have stayed the same or decreased. Annual debt service for outstanding water bonds is approaching \$80 per household because water bonds make up a larger proportion of water funding. By comparison, total State annual debt service is \$365 per household (DOF, 2012).

State Government Role and Partnerships

This section summarizes the current and future role of State government to support and advance integrated water management regionally and statewide. It includes a description of current and future State government obligations and commitments, and its role in investing in IWM innovation and infrastructure. A more detailed description of State government's role can be found in Chapter 2 Imperative to Invest.

In reviewing the history of water development in California, the role of State and federal governments was demonstrated by their investments in water and flood management infrastructure to promote growth and economic development in rural, suburban and urban communities. These investments resulted in major projects that crossed watersheds and/or had broad based public benefits. During the past few decades, government's role has also included environmental protection and enhancement. More recently, State government is promoting multi-benefit IWM programs and projects with more sustainable outcomes, and ensuring that disadvantaged communities have safe water and sanitation.

Basic Obligations

The obligations of State government include:

- **Representing California in government-to-government interactions** with the federal government, other states, and other sovereign nations and tribal governments.
- **Meeting basic public health and safety needs for all Californians** by regulating minimum public health standards and by providing assistance to communities that can't meet regulations.
- **Protecting public trust resources** by regulation and in planning and allocation of water resources. The public trust doctrine recognizes that certain natural resources, including water, tide and submerged lands, the beds and banks of navigable rivers, and fish and wildlife resources are owned by the public and held in trust for present and future generations of Californians.
- **Protecting unique real property interests.** The State has a fundamental responsibility to California taxpayers to protect the State real property assets it owns and reduce State liabilities.

Commitments and Responsibilities

- **Operate and manage the State Water Project.** State government is the owner and operator of the State Water Project and has the responsibility (and contractual commitments) of providing reliable water supplies to the water contractors; the financiers and beneficiaries of the SWP.
- **Plan, implement and maintain the State Plan of Flood Control.** State government has responsibility for providing assurances to construction access, operations, and maintenance for portions of the state's federally authorized flood protection system.
- **Planning, Policy Research and Technical Assistance.** State government performs many critical planning and research activities in support of resource management (executive, legislative and local government) decisions and advancing water science and technology.
- **Integrate Water Rights and Water Quality Planning.** Basin Plans are prepared for each of the 10 hydrologic regions and by statute become part of the California Water Plan.

Investing in Innovation and Infrastructure

State government has and should take a lead role in investing in innovation and infrastructure actions for the benefit of all regions. Innovation includes a broad range of activities that comprises governance, planning and process improvements, data, tools, and water technology research and development. State government can also demonstrate leadership by serving as a facilitator and clearinghouse of innovation to ensure that new solutions are fully utilized throughout the state. The State's investment in innovation provides processes and information that aid decision making throughout the state and support more cost-effective infrastructure investments by regional and local entities.

State government has and should continue to invest in water infrastructure – natural (green) and built (grey) – in partnership with federal, tribal, regional and local governments, non-profit organizations, the business community, and private entities.

State government investments should focus on actions that:

- Regions and communities cannot accomplish on their own
- Involve interregional, interstate, or international issues
- State government can do more efficiently and/or cost-effectively (i.e. providing a high return on investment to the benefit of the state's taxpayers)
- Provide broad public benefits
- Remediate legacy environmental impacts

Future IWM Costs

This section summarizes anticipated total future IWM costs throughout California and across local, state, federal and tribal governments. Due to many data gaps and lack of a consistent methodology, Update 2013 includes a preliminary and cursory estimate of future IWM costs. Additional engineering, economic, and risk characterization studies are needed to develop more accurate projections of California's future IWM funding needs (see *Next Steps* section below). That said, based on recent and existing IWM expenditures and a reasonable assumption of needed near-term innovation and infrastructure, it is estimated that at least \$200 billion are needed over the next decade. This estimate assumes that future average annual IWM expenditures over the next 10 years would occur at approximately the same rate as current annual expenditures (\$20 billion per year as shown in figure 7-3). In order to sustain current annual expenditure levels, new finance mechanisms and revenue sources will be needed given the current situation: that the authorized G.O. bonds are nearly allocated, reductions in federal funding, and reductions in General Funds allocated to IWM activities. The majority of all IWM investments in California during the next decade will go toward meeting infrastructure needs with a smaller portion for innovation actions needed to support more informed investment decisions.

Even making the assumption that 10 years of expenditures would rehabilitate and replace aging infrastructure, close to \$200 billion would need to be spent over the next decade. This amount applies to the total of State, federal, and local investments. Local entities will pay the majority of these costs. State government investment in innovation will be only a small portion of this estimate, perhaps less than a few \$100 million. State government investment in infrastructure, including financial incentives and cost-sharing with federal, local and private partners, will depend on future authorizations, funding mechanisms and revenue sources (described below).

In order to sustain current expenditure levels, more reliable finance mechanisms and revenue sources will be needed given the current situation: that the authorized G.O. bonds are nearly allocated, reductions in federal funding, and reductions in General Funds allocated to IWM activities.

The California Flood Future Report identified more than \$50 billion in needs for specific projects and improvements that are now in the planning cycle. These projects (mostly site specific) collectively would not provide statewide protection from the 100-year storm event. The total investment needed to reduce risk against the 500-year flood event is assumed to be several times the \$50 billion amount. This is based on the 5.8 million increase in population exposed within the 500-year floodplains compared to 1.4 million in the 100-year floodplain. However, willingness to fund flood management for a 500-year storm event has not been demonstrated. For this reason, a conservative estimate for flood management investments based on what Californians would be willing to accept and pay for could be at least twice the \$50 billion estimated for existing proposed projects, or more than \$100 billion.

ASCE's "California Infrastructure Report Card: A Citizen's Guide-2012" estimated the expenditures needed by California in several infrastructure categories. Those categories related to IWM are shown below, along with the projected expenditures needed over the next 10 years – totaling nearly \$20 billion per year as estimated above.

- Levees/Flood Control--\$2.8 billion per year
- Urban Runoff--\$6.7 billion per year
- Wastewater--\$4.5 billion per year
- Water--\$4.6 billion per year

An assessment,⁵ conducted by the U.S. Environmental Protection Agency in 2011 found California could use \$44.5 billion to fix aging drinking water systems over the next two decades. The survey placed California at the top of a national list of water infrastructure needs. In California and elsewhere, the biggest need was for repairing and upgrading water transmission and distribution lines.

The Bay Delta Conservation Plan (BDCP) is a 50-year ecosystem plan designed to restore fish and wildlife species in the Delta in a way that also protects California's water supplies while minimizing impacts to Delta communities and farms. The total estimated cost of implementing the Bay Delta Conservation Plan, over the 50-year permit term is \$24.54 billion (in undiscounted 2012 dollars).⁶

As another estimate of future IWM costs, there are approximately ten thousand water projects identified by the state's 48 IRWM regional water management groups. Although it is unlikely that every project would be implemented, the total cost of these projects would be several hundred billion dollars.

Funding, Who and How

This section includes information about potential IWM financing mechanisms and revenue sources, namely: shared values for guiding State government investments and prioritization, how to allocate State government funding, and an inventory of potential revenue sources. This chapter will also present an analysis of available finance strategies. More information can be found in Chapter 2 Imperative to Invest and the Volume 4 Reference Guide.

Shared Values for State Government Investment and Prioritization

An essential first step completed during Update 2013 was identifying shared values to guide decisions related to the finance planning framework. The shared values described below are to be used for guiding IWM decisions regarding investment and prioritization of State government funds. The scope includes IWM programs and projects directly administered by State government, as well as future State IWM loans and grants that are allocated as incentives to tribal, regional and local governments. These values can also guide preparation of future criteria for State government funding. These values are not intended to direct tribal, regional or local finance decisions; nor are they intended to modify existing State investments or ongoing financial activities such as the allocation of currently authorized G.O. bonds. The shared values are also not intended to provide guidance for financing specific projects at any scale (statewide, inter-regional, tribal, regional or local).

The shared values developed for Update 2013 are grouped into three categories: Prioritization of State Government Investments, Fiduciary Responsibility, and Beneficiary and Stressor Responsibility.

⁵ http://water.epa.gov/grants_funding/dwsrf/upload/epa816r13006.pdf

⁶ http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Estimated_Cost_to_Implement_the_BDCP_Brochure_5-29-13.sflb.ashx

Prioritization of State Government Investments - Investment decisions will include equal regard for economic, environmental, and social criteria.

- a) Decisions are informed and priorities are set using a process that includes broad stakeholder interests and public participation.
- b) Preference is given to multi-benefit projects that meet regional or statewide interests.
- c) Cost and benefit data used in the analysis include monetary and nonmonetary life cycle costs and benefits with an emphasis on long term planning. Stranded costs are avoided, and all costs during the life of a project are included in the analysis, such as monitoring, planning, construction, operation, maintenance, mitigation, business disruptions, and externalities.
- d) Decisions are made using best available data and knowledge, understanding that deferring decisions in anticipation of better information can increase cost of implementation, create hesitation, and miss opportunities to achieve benefits.

Fiduciary Responsibility - State government will be fiscally responsible with State funding.

- e) Investment decisions account for the availability of future revenues, cost of borrowing, and risks of indebtedness. This includes matching investments with appropriate funding mechanisms and revenue sources.
- f) Good stewardship of State government funds includes transparency, accountability, discipline to spend reasonably, clarity of purpose, and personal integrity by those entrusted with public funding. Good stewardship engenders trust and increases the public's willingness to pay for future IWM activities.
- g) State government funding is not redirected from its authorized purpose.
- h) Amount of time needed to repay debt does not exceed the life of a project. This value applies to fiscal, natural and all other emergencies.

Beneficiary and Stressor Responsibilities - Those receiving benefits or creating impacts pay for them.

- i) When beneficiaries can be identified, those receiving benefits pay for them. A nexus and proportionality is established between charges and benefits. This value recognizes the concept of equity regarding value exchange (i.e. paying in proportion to what you receive).
- j) State government has a responsibility to help communities that can't help themselves. State funding is also appropriate for helping communities meet State regulations that they cannot fully cover.
- k) State funding pays for broad statewide benefits.
- l) State government pays for persistent impacts from historical activities that are no longer creating impacts of the same type or magnitude (legacy impacts), but only in cases where stressors cannot be identified or no longer exist. In some cases legacy impacts may go unaddressed indefinitely.
- m) State funding is proportional to the broad public interest. Assignment of costs to entities that currently engage in an activity that involves an impacted area is proportional to their current impacts (not legacy impacts). Some impacts may need to be addressed before costs are assigned.

Financing Mechanisms

The future of water financing in California remains uncertain. Water management strategies are being integrated but water management funding remains fragmented limiting opportunities for further

investment in water innovation and infrastructure (green and grey). Future financing mechanisms will need to capitalize on local, regional, State, federal, tribal, public and private cost sharing. Even with further integration, securing adequate funding will require innovative financing mechanisms such as those used for other public infrastructure.

Budget balancing efforts in California and increased attention on the federal deficit will limit the political viability of future revenue generation, in the near-term, by increasing public debt such as with G.O. bonds. The public is increasingly aware of and reluctant to long-term borrowing costs. To secure reliable revenues for future California water management, State government will need to explore and implement innovative finance mechanisms and diverse revenue sources.

There is no single approach, mechanism or revenue source for developing a reliable funding portfolio for integrated water management. Reliable funding will be driven by local, regional and state interests, and solutions will need to be considered at a local and/or regional scale.

The financing mechanisms and revenue sources described below are presented in Update 2013 as an inventory of possible tools for financing State government's role for advancing integrated water management activities and programs.

State IWM Innovation and Infrastructure Investment Fund

The Update 2013 finance planning framework includes several proposed improvements in prioritization and management of State government investments for IWM. One way to implement several components of the finance framework and to advance the shared values for State government investment and prioritization is to establish a State IWM Innovation and Infrastructure and Investment Fund (State 4I Fund). A consolidated State water fund can be designed to increase return on investment, enhance accountability, and improve consistency and efficiency by using the following criteria in developing the fund:

- a. Increase the reliability, predictability and level of State IWM funding for statewide and regional water programs and projects
- b. Provide a consistent method for allocating, awarding, and disbursing State funding for water innovation and infrastructure programs and projects
- c. Use competitive incentive programs in favor of funding earmarks
- d. Include regional accounts to continue IRWM to increase flexibility, reflect local and regional conditions, and advance regional goals and investment priorities
- e. Provide proactive planning that avoids shovel readiness as a primary funding criterion and implements consistent rules and standards for allocating State funding.

Money from such a State 4I Fund could potentially be used for investments described in the finance planning framework such as:

- a. State IWM innovation and infrastructure investments
- b. Grants and loans for regional incentives using regional accounts
- c. Projects to remediate legacy environmental impacts
- d. Assisting economically disadvantaged and/or other communities that cannot cover State regulatory compliance costs
- e. State cost-sharing to leverage federal, local, and private funding

The State 4I Fund could provide a common and consistent framework for the prioritization and allocation of State government water funding, and could be periodically reevaluated and adapted to meet changing conditions and priorities.

To establish the State 4I Fund, a task force or similar stakeholder process is needed to further explore and elaborate on a number of considerations including but not limited to:

- Scope of State 4I Fund (e.g. proportion of total State IWM investment that is managed through 4I Fund.)
- Criteria for prioritizing and funding State government IWM innovation and infrastructure investments.
- Strategies to improve the transparency and accountability of State fund disbursements.
- 4I Fund governance that includes local and regional discretion and decision-making
- Methods for enhancing stewardship of State government monies at both statewide and regional scales.
- How existing State and federal funding could be used to endow the Fund.

Potential Revenue Sources

State Water Bonds

State government will continue to periodically bring new water bonds to the public for vote. These usually specify uses of the bond funds for specific periods of time. Future bond language could provide funds directly to the State 4I Fund for projects and programs that meet criteria established for the Fund.

State General Fund

The State General Fund has traditionally provided a portion of the funding for water related projects and programs, but this funding has been decreasing in recent years as bond funding was available. Future contributions from the General Fund could be made to the State 4I Fund for projects and programs that meet criteria established by the Fund.

Federal Revenue Sources

Besides the annual contributions that federal government makes to the Clean Water and Drinking Water State Revolving Funds, several federal revenue sources could provide funding for California IWM that could be made to the State 4I Fund. Depending on actions by Congress, funding may be available to the State or local governments. One of the most significant contributor of federal funds over the past few decades has been the Water Resources Development Act.

Water Resources Development Act. The Water Resources Development Act (WRDA) refers to a series of public laws enacted by Congress to deal with a range of water resources issues. The first WRDA, passed in 1974 (PL 93-251), amended the Flood Control Act of 1954, and authorized the USACE to undertake projects with additional purposes such as navigation. There have been 10 WDRA's passed since 1974, with the latest being passed in 2007. Over that time the purposes have been expanded to consider other purposes such as ecosystem improvements, water resources development, and water conservation.

In May 2013, the US Senate passed the 2013 WRDA. It now goes to the House for consideration. As it is currently written, the legislation would establish a 5-year innovative project financing pilot program. This new pilot program would provide loans and loan guarantees for important flood control, water supply, and wastewater projects.

Potential Federal Funding Sources Being Considered

Several potential federal actions could provide funding for California IWM. Depending on actions by Congress, funding may be available to the State or local governments. Some of the proposed innovative approaches include:

- **Federal Water Infrastructure Trust Fund.** The Water Infrastructure Trust Fund, if established by Congress, would create a stable and long term revenue stream to finance water infrastructure projects. The current proposal under consideration is H.R. 3145 and includes over \$10 billion annually with a focus on clean water projects.
- **Water Infrastructure Finance Innovation Act (WIFIA).** The Water Resources and Environment Subcommittee has circulated a draft WIFIA bill (H.R. 3145) and held two hearings on the topic in 2012. One of the main benefits of the proposed program would be to provide low cost capital to infrastructure projects.
- **National Infrastructure Bank.** An infrastructure bank manages capital and provides loans for infrastructure development. The most recent proposal, H.R. 402, would create a bank similar to the FDIC. The bank would be authorized to issue bonds and subsidies to infrastructure projects, borrow and, in turn, lend to commercial infrastructure projects, and purchase and sell infrastructure loans and securities on the market.
- **Private Activity Bonds.** Congress is considering modifying Private Activity Bond restrictions. Private Activity Bonds are tax-exempt bonds that are available for privately owned water facilities operated by a government unit or charge water rates that are approved by a subdivision of a community. Private agencies are typically not eligible for tax-exempt municipal bonds, which limits access to capital to finance new infrastructure projects.
- **Build America Bonds.** Congress is considering reinstating Build America Bonds. As part of the American Recovery and Reinvestment Act, Congress created Build America Bonds to encourage job creation through infrastructure projects. Eligible projects were not limited to infrastructure and did not allow for private company participation. The bonds stopped being issued in December 2010. Congress is considering reinstating the bonds to target water infrastructure projects.

Public-Private Partnerships

Private sector partnerships (commonly called P3s or PPPs) are partnerships between government and private agencies. Just under one-sixth of municipal and industrial (M&I) water in California is currently delivered via private companies, about equal to the U.S. average. Neighboring states with broader enabling legislation in place include Oregon, Washington, Nevada, Utah, and Colorado. There is consequently room to expand these partnerships in California.

The California Infrastructure Finance Act allows P3s in the state for projects that must be fee-producing, not include any state funds, and the length of the P3 contract cannot exceed 35 years. Also, there is an expressed exclusion of State agencies from the act, so projects are limited to local government. The exclusion also prohibits its use on state water projects. Because the act doesn't allow the use of any state funds, it blocks the use of any state revolving funds on these projects.

P3s offer two key benefits, including an ability to capitalize on innovative technologies and an ability to capitalize on potential private cost efficiencies. Similar to other industries, private water agencies operate to maximize the return to company owners and consequently have an incentive to innovate new technologies. Private agencies are likely to focus on cost (and water) saving management strategies.

P3s could alternatively focus on increasing the availability of capital to private agencies. This may also encourage increased risk sharing. The state is able to borrow at a better rate than private agencies and this will benefit private investment under P3s. One drawback is that this may create an incentive for riskier projects to be pursued as companies will seek assistance in securing funds for projects with higher borrowing costs (typically riskier projects).

P3s can also help the state use renting and leasing as a finance mechanism. This is where privately owned infrastructure is made available for public use. The government rents or leases the facilities from the private entity. This is not commonly used in water infrastructure, but may be more common with additional P3s. While there have been other legislative actions that allow for more specific uses of P3 for transportation projects, there have been no other legislative changes that have broadened the use of P3s for water projects. Therefore the following limitations have restricted their use:

- The exclusion of state financing eliminates the use of the low interest loans from the state revolving funds.
- Private financing rates are generally higher due to tax effects. Local bond financing options would typically be tax exempt for the bondholder and therefore have lower interest rates.
- The prohibition of their use for state water projects restricts P3s to local projects.

Statewide Water Use Fee

A statewide water use fee, as part of a portfolio of revenue sources, could help finance regional and State government IWM activities. Some important considerations and limitations when contemplating a statewide water use fee are listed in Box 7-1. A statewide water use fee could take many forms but would fundamentally be a fee or tax which would be paid by water users in the state. The fee or tax could be structured as a flat rate (everyone pays the same), percentage rate (based on proportional usage), or volumetric charge (everyone pays per unit of water used). A volumetric charge best links personal usage to cost and this method would be the most economically efficient. Depending on how a statewide water use fee was designed, decisions about funding allocations and oversight could be made through a State

Board or Commission (comprised of State appointees and/or local representation), a State agency, Regional Water Management groups, and/or using other finance mechanisms. Similarly, it must be determined if and how water use fees could be used to provide regional or local benefits.

A statewide user fee was considered in the 2006 Governor's Plan but not enacted. Another term for a statewide user fee is a public goods charge (PGC). The 2006 Governor's Plan proposed a statewide water use fee for different types of water users including urban, agricultural, and industrial. It proposed a flat monthly charge on every home and business and the charge would vary by urban, agricultural, and industrial users. The PGC option has also been reviewed by researchers⁷ working on behalf of the California Public Utilities Commission and the Water Energy Team of the Climate Action Team. It was also discussed in early drafts of the Bay Delta Conservation Plan.

Box 7-1. Considerations and Limitations of a Statewide Water Use Fee

Some important considerations and limitations when contemplating a statewide water use fee include:

- The range of legally allowable uses/allocations of a statewide water use fee is generally narrower relative to other sources such as general funds. This issue could limit the effectiveness of user fee revenues in meeting multiple objectives. This issue is further complicated by the difficulties in establishing a strong (legally defensible) nexus between specific IWM activities and broad public benefits.
- A statewide water use fee could impact local water agencies' ability to increase local revenues (i.e. a State government water user fee could reduce ratepayers' willingness and ability to pay for future local projects).
- A statewide water use fee alone cannot provide a significant portion of the total future IWM funding demand without doubling or tripling many end user rates.
- Volumetric use data are not universally available which creates inequity in fee assessment across users. There are also concerns about allocating fees equitably between municipal and agricultural users.
- Assessing a fee on water and wastewater systems that are not currently within a public water or another type of district could result in a net cost to State government due to lack of data and/or intuitional framework. Alternatively, not assessing a fee on private systems can create inequities in the allocation of the costs across water users.
- A statewide water use fee would not be an equitable strategy for funding many flood management, legacy impact remediation, and other IWM activities (outside of water supply). In other words, a water use fee revenue source is too narrow to fund the very broad suite of IWM strategies; and remain consistent with Update 2013 funding value of beneficiary or stressor pays.

Trade-Off Analysis

This section outlines a proposal to develop a decision support system to examine funding scenarios and help analyze trade-offs. More information can be found in Chapter 6 and Volume 4 Reference Guide.

⁷ U.C. Berkeley Goldman School of Public Policy, *Implementing a Public Goods Charge for Water*, by Kasandra Griffin, Greg Leventis, and Brian McDonald.

California faces tough decisions and trade-offs to allocate increasingly scarce funds to support integrated water management. Water management must compete for financial resources with a myriad of other infrastructure demands. When investment needs exceed existing available funding levels, it becomes increasingly important for decision makers to prioritize new water projects while accounting for the trade-offs.

Integrated water management decisions typically involve some type of collaborative process. The decision process can be characterized by two fundamental components, decision support and decision making. Decision support involves consideration of the entire system and how (or if) a potential project fits within existing infrastructure and policies. Decision making requires additional information such as selection criteria, availability of funds, and project costs and benefits. The decision making process typically results in some type of ranking of alternatives, whereas the decision support process evaluates how a project fits within a system.

A consistent and understandable framework for displaying important costs, benefits, and other impacts of potential projects can help inform these decisions. A Decision Support System (DSS) is a general term for a computer-based approach to provide structured and consistent information for decision making. When options are numerous, interrelated, and have complex effects, decision makers need to be able to screen the options, eliminate those that clearly don't meet the project goals and criteria, and identify a smaller number of scenarios that warrant further consideration and analysis. Both the screening step and the detailed analysis step can be greatly assisted by a DSS.

Next Steps

This section proposes actions to adapt, develop, and refine the finance planning framework during Update 2018 and beyond. It describes many activities, tasks and deliverables that the Update 2013 staff and advisory groups want included in the framework but was not completed during the Update 2013 process. In addition to the actions below to improve the finance planning framework, Chapter 8 Roadmap for Action contains a finance objective together with several related actions to improve the financing of IWM activities in California.

While the framework is intended to guide decisions on State government funding, there is value in considering the framework to identify and sequence all relevant finance planning activities at any level of government. Future Water Plan Updates will continue to advance and refine the financial planning framework. Future work is expected to consider each component (as developed by the Finance Caucus for the Finance Storyboard) of the framework in the following ways:

- **IWM Scope and Outcomes (Component 1)** – Revisit, clarify and adapt the scope of integrated water management to changing conditions and priorities.
- **IWM Activities (Component 2)** – Develop more specificity regarding the types of activities that State government should invest in with a clearer nexus to the types of anticipated benefits.
- **Existing Funding (Component 3)** – Continue to compile and synthesize data that tracks historical water related expenditures across local, state and federal governments in California.
- **Funding Reliability (Component 4)** – Work with the State Agency Steering Committee to identify where potential funding gaps exist between the State IWM activities described in component 2 and

existing funding levels and sources. Collaborate with regional water management groups to do the same for local and regional IWM activities.

- **State Role and Partnerships (Component 5)** – Continue to clarify and elaborate on the future role of State government to support a more specific description and estimate of future costs.
- **Future Costs (Component 6)** – Estimate future funding demands by: (a) launching IRWM, city, county and special district data pull; (b) work with State Agency Steering Committee to estimate the funding demand for existing and future IWM activities.
- **Funding, Who and How (Component 7)** - Continue to develop a prioritization method and rationale for apportioning IWM investment by the categories and subcategories developed in the Update 2013 Finance Planning Framework (i.e., Innovation, Infrastructure).
 - State government will work together with local and federal agencies to develop criteria for investment prioritization.
 - Prioritization process will give equal regard for economic, environmental and social criteria.
 - Review and adapt Shared Values for State IWM Investment and Prioritization to reflect changing State government and stakeholder priorities.
 - Develop geographical apportioning criteria for State government investment that is driven by resource management needs from California's upper watersheds to its near coastal areas.
- **Trade-Off Analysis (Component 8)** – State government should develop a decision support system (DSS) to provide guidance and leadership for defining uncertainties of future cost, benefits, prioritization, and other tradeoffs . The DSS would inform prioritization of State government expenditures, estimation of expected IWM benefits and methods for apportioning costs across financiers. It also includes developing a clear and consistent methodology for identifying public benefits associated with the entire range of IWM activities.